

Proposed Item for Biobased Designation

The following biobased product information has been collected to support item designation by USDA for the BioPreferred Program. This summary reflects data available as of June 12, 2009.

Title: Sun Care Products

Description: Sunscreen, sun block, and suntan lotions are lotions, sprays or other topical products that absorb or reflect the sun's ultraviolet radiation to protect the skin.

Companies Supplying Item: 42 companies supplying Sun Care Products have been identified through internet searches, manufacturer's directories, trade associations, and company submissions.

Industry Associations Investigated: The following industry associations have been investigated for member companies supplying Sun Care Products:

- United Soybean Board Association
- National Corn Growers Association
- Associated Skin Care Professionals

Commercially Available Products Identified: Of the companies identified, 185 Sun Care Products are commercially available on the market.

Product Information Collected: Specific product information including company contact, intended use, biobased content, and performance characteristics have been collected on 9 Sun Care Products.

Industry Performance Standards: Product information submitted by biobased manufacturers and suppliers indicate that have typically been tested to the following industry standards:

- 21 CFR Part 352 21 CFR Part 352 Sun Protection Factor Monogram

Samples Tested for Biobased Content: 7 samples of Sun Care Products have been submitted to independent laboratories for biobased content testing as specified by ASTM standard D6866.

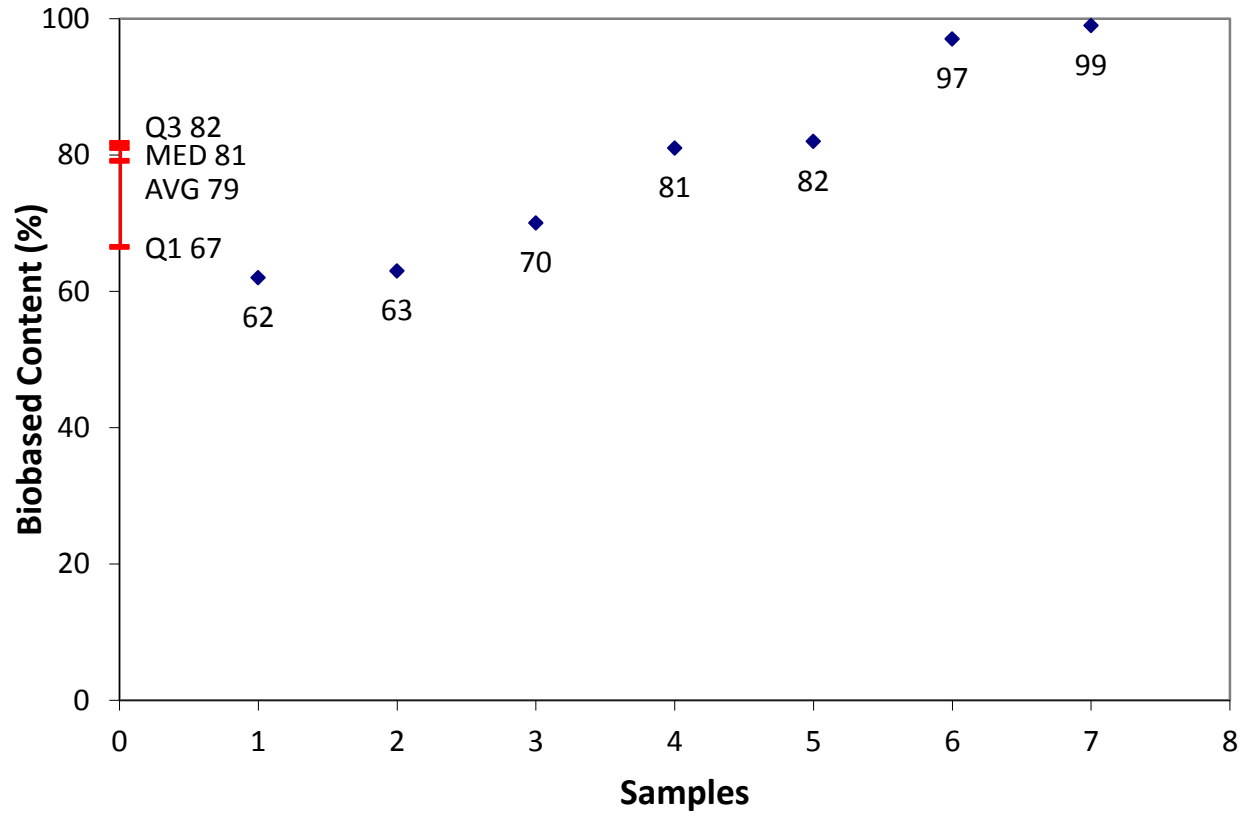
Biobased Content Data: Results from biobased content testing of Sun Care Products indicate a range of content percentages from 62% minimum to 99% maximum biobased content as defined by ASTM D6866. A detailed distribution of biobased content levels is included as Appendix A.

Products Submitted for BEES Analysis: Life-cycle cost and environmental effect data for 2 Sun Care Products have been submitted to NIST for BEES analysis.

BEES Analysis: The life-cycle costs of the submitted Sun Care Products range from \$16.50 minimum to \$28.72 maximum per usage unit. The environmental scores range from 0.0156 minimum to 0.0396 maximum. A detailed summary of the BEES results is included as Appendix B.

Appendix A - Biobased Content Data

Sun Care Products

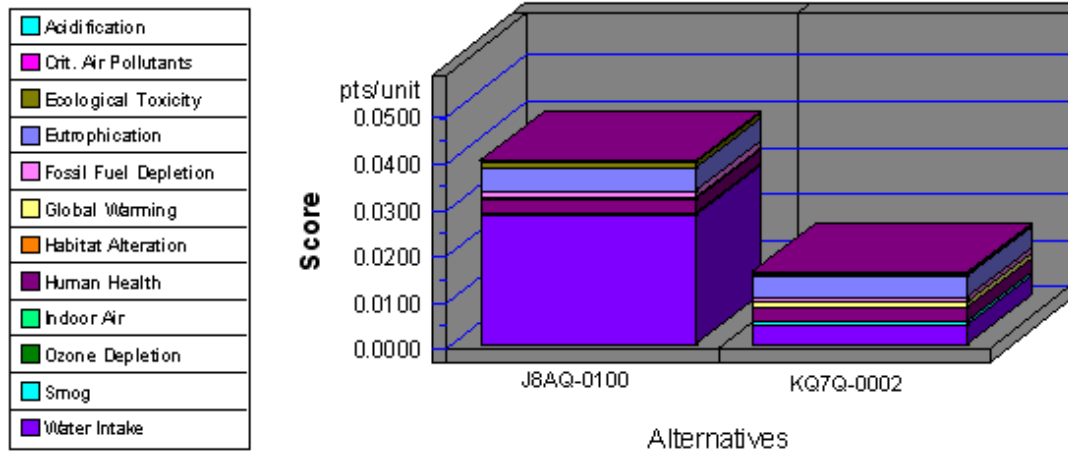


	Company	Product	C14	BEES
1	J8AQ	J8AQ-0100	62	Yes
2	J8AQ	J8AQ-0099	63	
3	P5IE	P5IE-0002	70	
4	ZK91	ZK91-0042	81	
5	ZK91	ZK91-0106	82	
6	Y191	Y191-0071	97	
7	KQ7Q	KQ7Q-0002	99	Yes

Appendix B - BEES Analysis Results

Functional Unit: 1 lb.

Environmental Performance

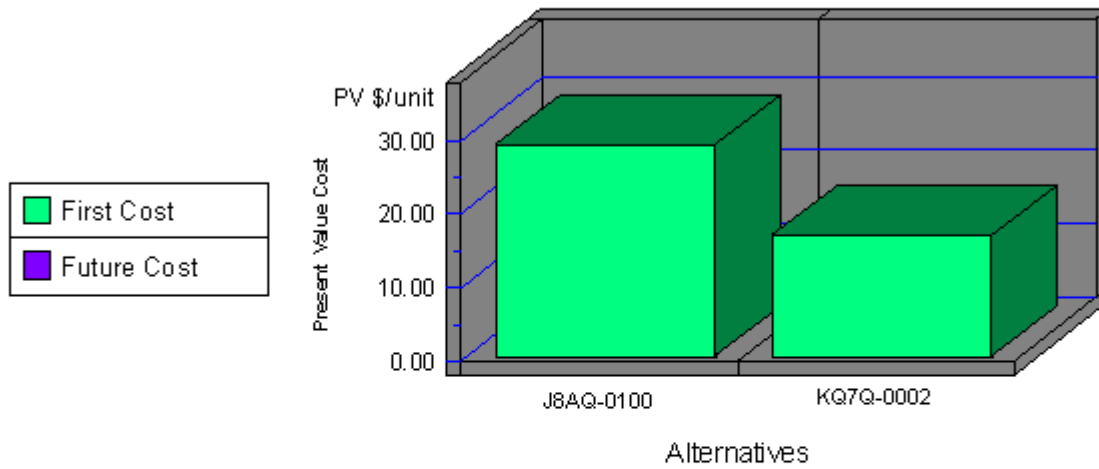


Note: Lower values are better

Category	J8AQ-0100	KQ7Q-0002
Acidification--3%	0.0000	0.00000
Crit. Air Pollutants--9%	0.0002	0.00020
Ecolog. Toxicity--7%	0.0011	0.00060
Eutrophication--6%	0.0050	0.00450
Fossil Fuel Depl.--10%	0.0014	0.00120
Global Warming--29%	0.0005	0.00120
Habitat Alteration--6%	0.0000	0.00000
Human Health--13%	0.0030	0.00290
Indoor Air--3%	0.0000	0.00000
Ozone Depletion--2%	0.0000	0.00000
Smog--4%	0.0003	0.00060
Water Intake--8%	0.0281	0.00440
Sum	0.0396	0.0156

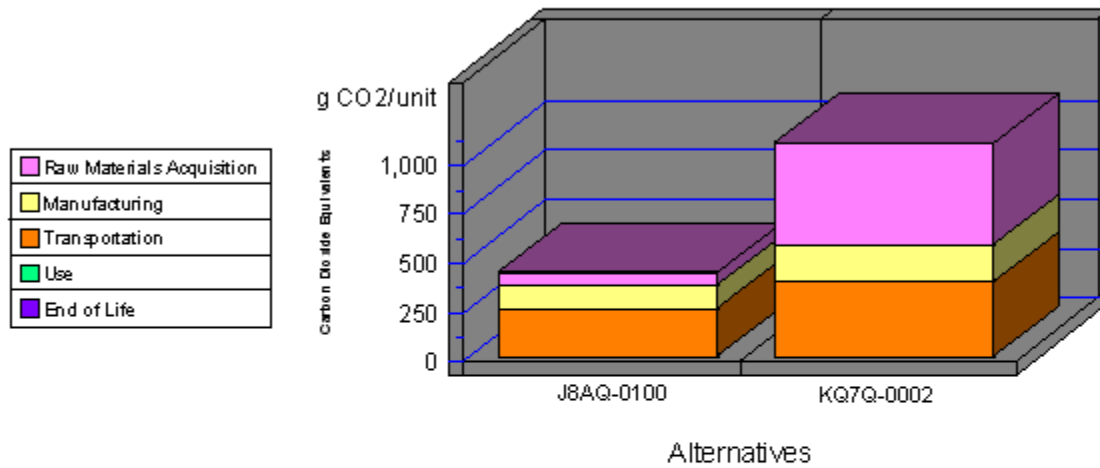
Sun Care Products			
Impacts	Units	J8AQ-0100	KQ7Q-0002
Acidification	millimoles H ⁺ equivalents	1.08E+03	2.05E+03
Criteria Air Polutants	microDALYs	3.97E-01	4.57E-01
Ecotoxicity	g 2,4-D equivalents	1.30E+01	7.52E+00
Eutrophication	g N equivalents	1.59E+01	1.44E+01
Fossil Fuel Depletion	MJ surplus energy	5.03E+00	4.09E+00
Global Warming	g CO ₂ equivalents	4.26E+02	1.09E+03
Habitat Alteration	T&E count	0.00E+00	0.00E+00
Human Health--Cancer	g C ₆ H ₆ equivalents	1.89E+00	1.87E+00
Human Health--NonCancer	g C ₇ H ₈ equivalents	3.27E+03	2.56E+03
Indoor Air Quality	g TVOCs	0.00E+00	0.00E+00
Ozone Depletion	g CFC-11 equivalents	2.38E-06	1.24E-06
Smog	g NO _x equivalents	1.28E+01	2.29E+01
Water Intake	liters of water	1.86E+03	2.89E+02
Functional Unit	-----	1 pound	
1 Following are more complete descriptions of units: Acidification: millimoles of hydrogen ion equivalents; Criteria Air Pollutants: micro Disability-Adjusted Life Years; Ecological Toxicity: grams of 2,4-dichlorophenoxy-acetic acid equivalents; Eutrophication: grams of nitrogen equivalents; Fossil Fuel Depletion: megajoules of surplus energy; Global Warming: grams of carbon dioxide equivalents; Habitat Alteration: threatened and endangered species count; Human Health-Cancer: grams of benzene equivalents; Human Health-NonCancer: grams of toluene equivalents; Indoor Air Quality: grams of Total Volatile Organic Compounds; Ozone Depletion: grams of chloroflouorocarbon-11 equivalents; Smog: grams of nitrogen oxide equivalents; and Water Intake: liters of water.			

Economic Performance



Category	J8AQ-0100	KQ7Q-0002
First Cost	28.72	16.50
Future Cost- 3.0%	0.00	0.00
Sum	28.72	16.50

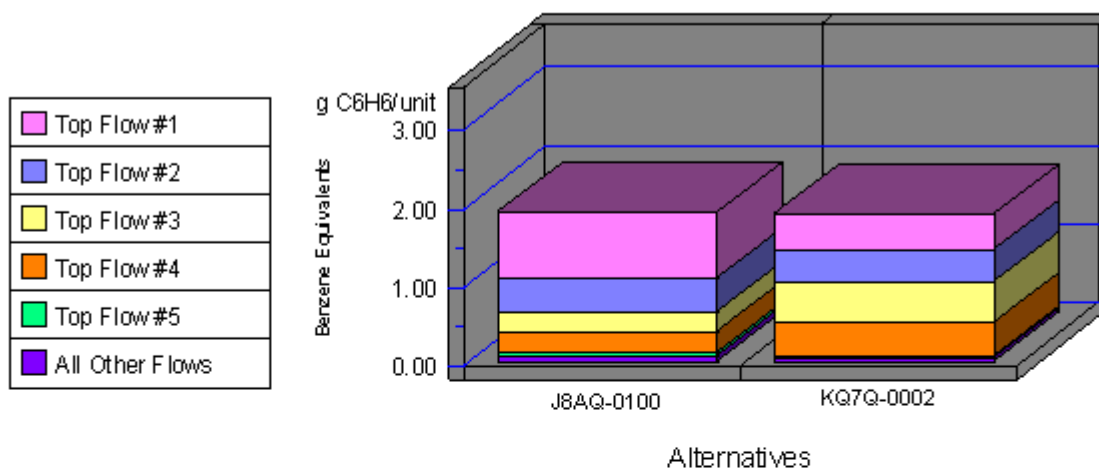
Global Warming by Life-Cycle Stage



Note: Lower values are better

Category	J8AQ-0100	KQ7Q-0002
1. Raw Materials	57	518
2. Manufacturing	122	188
3. Transportation	247	384
4. Use	0	0
5. End of Life	0	0
Sum	426	1090

Human Health Cancer by Sorted Flows*

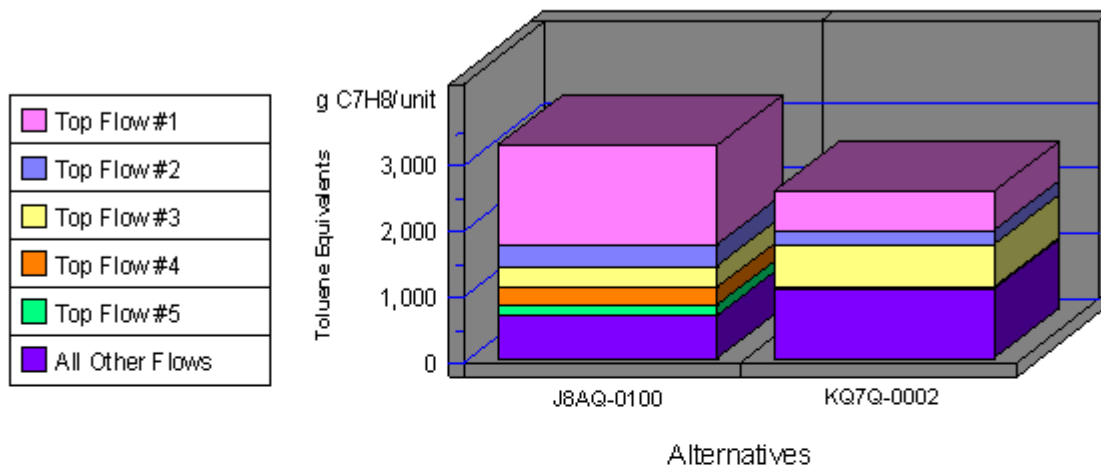


Note: Lower values are better

Category	J8AQ-0100	KQ7Q-0002
Cancer--(w) Arsenic (As3+,	0.83	0.45
Cancer--(w) Phenol (C6H5OH)	0.42	0.40
Cancer--(a) Dioxins (unspecifie	0.25	0.51
Cancer--(a) Arsenic (As)	0.25	0.43
Cancer--(a) Chromium (Cr III, C	0.05	0.01
All Others	0.08	0.07
Sum	1.89	1.87

*Sorted by five topmost flows for worst-scoring product

Human Health Noncancer by Sorted Flows*



Note: Lower values are better

Category	J8AQ-0100	KQ7Q-0002
Noncancer--(a) Mercury (Hg)	1,511.56	599.60
Noncancer--(a) Lead (Pb)	344.67	216.03
Noncancer--(a) Dioxins (unspeci	318.45	637.70
Noncancer--(w) Mercury (Hg+,	277.14	29.42
Noncancer--(a) Aluminum (Al)	160.01	0.00
All Others	653.58	1,074.49
Sum	3,265.42	2,557.25

*Sorted by five topmost flows for worst-scoring product